Indian Western Margin: Plate Tectonics, Paleogeography, and Deepwater Hydrocarbon Prospectivity

A two-day National Symposium

jointly organized by

Department of Earth Sciences
IIT Bombay

Directorate General of Hydrocarbons

DIRECTORATE GENERAL OF HYDROCARBONS
(Ministry of Petroleum & Natural Gas,Government of India)

Date
11-12 April
2025

Venue
P.C. Saxena
Auditorium
IIT Bombay

Conveners

Prof. M. Radhakrishna
Department of Earth Sciences
IIT Bombay

Dr. Sharma Dronamraju
AKD Professional Solutions Inc.
Texas, USA

Dr. Kaustav Nag
DGH, New Delhi

Dr. G Srinivasa Rao
Department of Earth Sciences
IIT Bombay

IIT Bombay

IIT Bombay was established in 1958. It attracts top-tier students. Its renowned faculty drives research and academics, forging collaborations with national and international peers. Alumni excel in various fields, contributing to industry, academia, research, and more. The institute offers innovative short-term courses, continuing education, and distance learning. Faculty members have received prestigious awards, including the Shanti Swaroop Bhatnagar and Padma honors. It provides a fully residential experience with hostels, dining, sports, and recreational facilities.

Department of Earth Sciences

The Department of Earth Sciences was established as an independent department in 1982, before that, it was successfully running an M.Sc. program in Applied Geology since 1964 from the Geology Section of the Department of Civil Engineering. The Department has been ranked 37th for Minerals and Mining, 151-200 for Geology, and 200-250 for Geophysics in the 2023 QS Rankings by subject. The Department attracts the best faculty, and the country's top-ranking students into its M.Sc., M.Tech. and Ph.D. programmes through JAM and GATE Examinations. The 26 faculty members with specializations covering a wide spectrum of research areas in Geosciences including both Geology and Geophysics, are actively engaged in teaching and research. Besides teaching commitments, faculty members undertake several sponsored research programmes, consultative assignments, and short-term courses under the Continuing Education Programme (CEP) of IIT Bombay. The entire core and elective courses included in the programs have been specifically designed to meet industry standards and research requirements. The department has developed state-of-the-art laboratories and research facilities, including National Centre of Excellence in Carbon Capture and Utilization, National Facilities – a 40Ar/39Ar Mass Spectrometer for Geochronology and an Electron Probe Micro Analyzer (EPMA) for Mineral Chemistry.

India's Western Margin

The western margin of India has always been intriguing with a complex geological history since its breakup from the Gondwanaland. This margin is intricately linked to the formation of modern-day continental landmasses such as Madagascar, Sudan, Sri Lanka, the Maldives, Laccadives, and Seychelles, as well as notable oceanic features like the Carlsberg Ridge, volcanic terrains, and fracture zones. The rapid flight of India and it's collision with Eurasia led to the rise of the Himalayas as a spectacular feature on the Earth's surface. Despite being a predominantly, a passive margin since the Cretaceous, the western margin of India has a paucity of deepwater hydrocarbon-bearing fans, which are abundant in other regions of the globe such as Nigeria and the Atlantic margin. The Bombay High region is a notable exception, with commercially viable hydrocarbons identified in the Neogene section. Beyond Bombay High, however, there have been no significant commercial deepwater hydrocarbon discoveries along the western margin. In stark contrast, the eastern margin of India boasts multiple discoveries across the Mahanadi, Krishna-Godavari, and Cauvery basins, making this disparity a significant geological and economic anomaly.

The two-day integrated geoscience symposium being organized by the Indian Institute of Technology Bombay aims to address the critical knowledge gaps in understanding the Indian western margin, petroleum systems, and hydrocarbon prospects, from the Kerala-Konkan to Kutch offshore regions. This geoscience symposium is expected to provide an interactive podium for multiple organizations from the government and premier research organizations, to share the current state of knowledge, to support intellectual curiosity, and hopes to address some of the fundamental questions on the geology and hydrocarbon potential of the western margin of India.

On Day 1, the symposium will focus on rifting history of India from East Africa and Madagascar, plate tectonic reconstructions, the age of the oceanic crust and early sedimentation, the nature of COB, Deccan volcanism, etc., to make a quantitative evaluation of the western Indian margin evolution and related tectonic processes. The paleo bio-markers, sedimentation patterns, insights from DSDP/ODP cores, and the role of deep-sea fans in shaping the region's geological history will also be discussed. The first day will also include an exploration of the stratigraphic record, sedimentary environments, and their connection to regional petroleum systems, followed by an interdisciplinary approach to understanding rift architecture and modelling sedimentary basins' evolution along India's west coast.

Day 2 will focus on basin architecture sedimentary basin histories, basin modeling, petroleum systems, recent advancements in data acquisition and integrated interpretations, innovative technologies in exploration, hydrocarbon potential resources evaluations from Kerala offshore to Kutch offshore. The symposium will conclude with panel discussion on existing challenges in deepwater exploration, and potential opportunities for collaborations in meeting the India's growing energy demand.

Themes for Discussion

Session 1: Gondwana breakup and paleo-tectonic reconstructions: current insights and new developments along the western margin of India and its conjugate counterparts

Session 2: Deccan magmatism and plume-lithosphere interactions

Session 3: Paleoclimate, sedimentation history, deep-sea and ultra deep-sea fan systems

Session 4: Interdisciplinary geoscience approaches: rift architecture, COB, and crustal structure

Session 5: Stratigraphy, and depositional environments

Session 6: Integrated geological-geophysical studies: basin and petroleum system modelling

Session 7: Recent hydrocarbon discoveries and Mesozoic potential: Case Studies from the western margin of India

Session 8: Deepwater exploration: challenges, opportunities, and technological innovations

Program Schedule

Day 1

09:00 AM	Inaugural Session
09:30 AM	Session 1
11:00 AM	Tea Break
11:30 AM	Session 2
01:00 PM	Lunch Break
02:00 PM	Session 3
03:30 PM	Tea Break
04:00 PM	Session 4
05:30 PM	Panel Discussion

Day 2

09:00 AM	Session 5
10:30 AM	Tea Break
11:00 AM	Session 6
01:00 PM	Lunch Break
02:00 PM	Session 7
03:30 PM	Tea Break
04:00 PM	Session 8
05:30 PM	Panel Discussion
06:15 PM	Valedictory Session

Important Dates

Last Date of abstract submission	March 16, 2025
Acceptance of abstract	March 21, 2025
Last date of registration	April 06, 2025
Symposium	April 11-12, 2025

Registration Fees

Foreign Delegates	100 USD
Industry/ NGO Sponsored	11800 INR
Faculty/ Scientists	3540 INR
Retired Faculty/ Scientists	2360 INR
Research Scholars	1770 INR
Students	1180 INR
Accompanying Person	1180 INR

At least one author of the accepted abstracts must be registered for the symposium.

Registration Fees includes GST @18%

Contact Us

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